

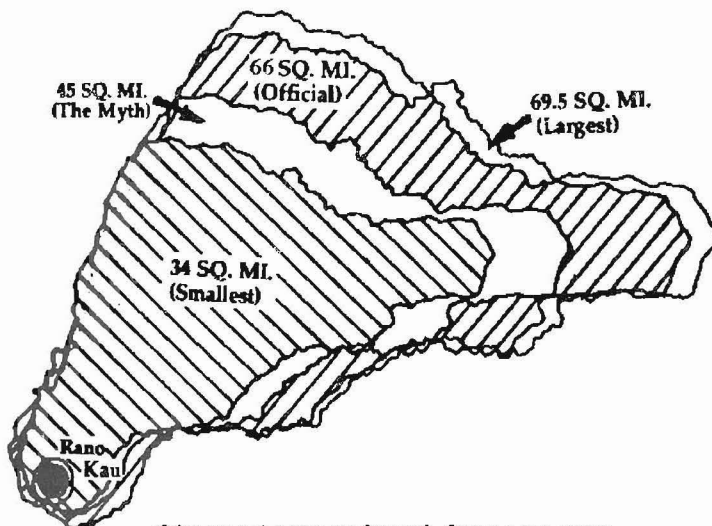
THE AREA OF RAPA NUI

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Premise. If much can be written about the correctness of Rapa Nui, Rapanui, Rapa-Nui or Rapa-nui by its aficionados, there is no reason why an article can't be written on the correctness of the area of the place.

Current area. The Chilean National Frontiers and State Limits, Ministry of Foreign Affairs, specifies the area for Rapa Nui as 170.85 square kilometers; (rounded to 171 sq. km.) or 65.96 square miles (66 sq. mi.). This has not always been the case. The literary size of the island has had an inconsistent history.

Inconsistencies noted. I visited Rapa Nui in February 1994. It had been my boyhood dream. I read many books and articles about every aspect of the island ... its geography, its history, its people, its culture and its mystery. I noticed that, over time, the many authors gave different dimensions for the island. Being a geographer and navigator, that fact bothered me. In my mind, the island took on many different dimensions (see Map). The following is an analysis of the problem.



COMPARATIVE SIZES OF RAPA NUI
(Keyed to Rano Kau)

Quantum leap. Thirty-seven documents were surveyed that were produced during the past 95 years. I found in these documents that the area of Rapa Nui ranged from 34 sq. mi. (88 sq. km.) to 69.5 sq. mi. (180 sq. km.); a difference of 35.5 sq. mi. (92 sq. km.)! This was equivalent to the area of Rapa Nui again if the area of the island were truly 34 sq. mi. ... literally a "quantum leap forward" ... or half the area if it was actually 69.5 sq. mi.

Review. About half of the selected documents were produced between the 85-year period from 1899 to 1984. The other half were generated during the past ten years from 1984

to 1994. The Area of Rapa Nui Table is a summary of what the documents and authors have presented over the years.

The Area of Rapa Nui Plot shows the data in graphic form.

The documented areas were divided evenly as follows:

Group I - 40 to 50 sq. mi. = 17 (46%) with a rounded average of 46 sq. mi. (see Plot)
Group II - 60 to 70 sq. mi. = 17 (46%) with an average of 65 sq. mi. (see Plot)

Sub-total	= 34 (92%)
Anomalies	= 3 (8%)
Total	= 37 (100%)

The "myth." In 1943, 45 sq. mi. was first mentioned as the area of Easter Island in Daniel's *Islands of the Pacific*. This was the beginning of a "45 sq. mi. myth." It was still sporadically perpetuated as recently as 1994.

The Easter Island Triangle. Over 50% of the Group I documents used exactly 45 sq. mi. for the area of the island.

These measurements appear to have been calculated from British Admiralty Hydrographic Office Chart 1389 (Authority: Chilean Government chart of 1970) or its predecessors. The title of the chart is "Islands and Anchorages in the South-East Pacific Ocean." Measurements are in degrees, minutes and seconds, consequently, nautical miles (nm). Since the island is triangular in shape, a simple area-of-a-triangle equation applied to the 1:100,000 scale inset of Isla de Pascua (Easter Island) calculated to 45.87 sq. nm. A computer digitizer measurement and a Bruning Areagraph application closely agreed with that calculation.

NM vs SM. The 45.87 square nautical miles have, in fact, been sub-sequently cited as "45 square miles" without the authors being aware of a 15% difference between nautical miles (nm: 6,076 feet) and statute miles (sm: (5,280 feet) [Universal Almanac - 1994]. In that case converting the island's nautical mile measurements into statute miles, using the area-of-a-triangle equation, calculates to 60.34 sq. mi., the low end of Group II.

64 sq. mi. Over 75% (13) of the documents in Group II were produced during the past ten years. During that time, most authors gave the area for Rapa Nui as somewhere between 62 and 69.5 sq. mi. Only eight of all the documents used exactly 64 sq. mi. (166 sq. km.), Chile's official measurement. The first time 64 sq. mi. appeared was in the January 1962 issue of *National Geographic Magazine* when Howard La Fay wrote, "Beyond the porch where I stood, lay Easter Island, the remote 64-square-mile dot of land whose

secrets have puzzled generations of scientists." Little did he know that many future scientists would be puzzled as to the island's size. After La Fay, the next time 64 sq. mi. was noted was 26 years later in the *Cambridge World Gazetteer* (1988). Six studies used exactly 64 sq. mi. in the past four years.

64 sq. mi. again. In their contribution to *Easter Island Studies* (1993), Charola and Weber state that the Rapa Nui National Park boundaries were established in 1976. They wrote that "The Park covers some 66.6 km² or about 40% of the island's surface area." This also calculated the island area as 64 sq. mi.

64 sq. mi. CONAF map. A computer digitizer measurement was also made of the excellent 1992 CONAF *Rapa Nui National Park Map*. The area was calculated to be 64 sq. mi. This again indicated that the majority of the authors in Group II were probably using newer geographic data.

Skepticism. Over time, the trend slowly moved toward the 60-something square mile range. However, like other Rapa

dimension giving a range from 45 to 61 sq. mi. in a respected *Geography of the Pacific* (the lower falling into Group I and the higher into Group II). These represented the remaining eight percent of the documents selected for this survey.

Recurring references. Handbooks appeared to update data from time to time, i. e., *South Pacific Handbook* (1982 = 45 sq. mi. to 1993 = 64 sq. mi.) and *Pacific Islands Yearbook* (1984 = 66 sq. mi. to 1990 = 69.5 sq. mi.). A survey of encyclopedias showed that geographical data was basically carried over from year to year for relatively long periods of time. *The New Grolier Multimedia Encyclopedia* (computer CD-ROM version of the book) cited 45 sq. mi. in 1992 and, as previously noted, *The World Book Encyclopedia* was still using 47 sq. mi. in its 1993 edition. Just think of all of the student papers that have and will continue to perpetuate "the myth."

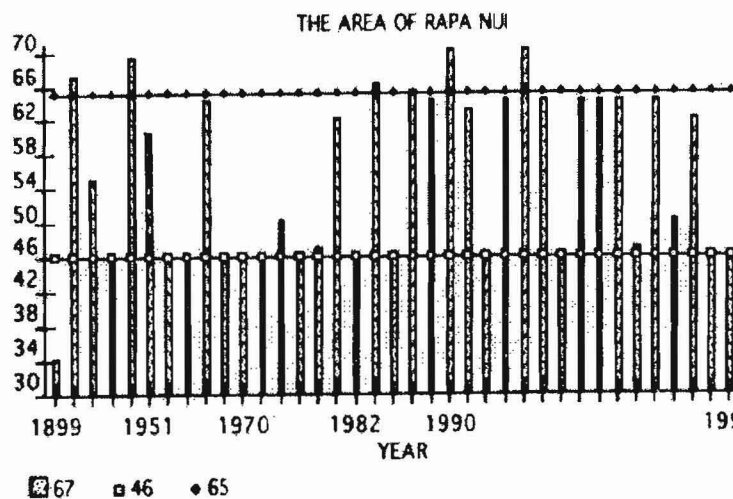
69.5 sq. mi. In 1988, a map of Chile was produced by the Cultural Department of the Embassy of Chile to the United States of America, Ministry of Foreign Affairs of Chile, Division of Cultural Affairs and Information (DIRACI). It stated that Chile's area included "180 km² (69.48 miles) of Oceania - Easter Island, Juan Fernandez Archipelago (Robinson Crusoe Island) and other islands off the Chilean coast." The *Pacific Islands Yearbook* (1989) and *Encyclopedia of World Cultures* (1991) probably did not realize they had over-sized Rapa Nui because of this.

So what? What does this all mean? Not much because nothing can be done about it except to understand that there have been diverse measurements for Rapa Nui over the past 95 years as presented in the selected documents. The physical size of the island did not measurably change over that time; however, the measurements by humans appreciably changed. These measurements have already been documented as fact during their time. Each explorer, author, researcher, travel writer, scientist or editor gave the area for Rapa Nui as he/she knew (or thought) it to be correct.

Caveat These documents are by no means near the hundreds of articles, papers, studies or books written about Rapa Nui. Many of them do not deal with, or even mention, the area of the island. The selected sampling, however, probably still reflects the outcome of the whole.

Bottom Line. The reported area of Rapa Nui has varied from 34 square miles to 69.5 square miles. In this day of space technology, satellites, GPS, and hi-tech geodesy, there shouldn't be a wide range of numbers for such a small place. So, how large is your Rapa Nui, Rapanui, Rapa-Nui or Rapanui? I suggest that, from now on, the *Rapanuiphile* agree on and use the measurement given by the Chilean National Office of Frontiers and State Limits ...**66 sq. mi. (171 sq. km.)**.

Let the letters to RNJ roll - - we are here in the thick of thin things!



Nui mysteries, it makes one wonder what noted anthropologist Sir Peter H. Buck (Te Rangi Hiroa) knew in 1938 when he wrote in his *Vikings of the Sunrise* that the area was 67 sq. mi., only three square miles larger than the present official measurement. Likewise, it also makes one wonder why post-Buck authors did not at least follow his lead.

45 sq. mi. myth. Authors and documents such as Heyerdahl (45 sq. mi.), Englert (45 sq. mi.), Samagalski (45 sq. mi.), Allen (46 sq. mi.), the *World Book Encyclopedia* (47 sq. mi.) and *Lonely Planet on a String* (45 sq. mi.), to name a few, did not pay attention to Buck's citation, La Fay, the Chilean Government or other authors in Group II. The "45 sq. mi. myth" was still continued.

Anomalies. The entries stated by Cooke, Metraux and Freeman appear to be anomalies. They were the smallest area, 34 sq. mi., documented in a U. S. government publication; a median area of 55 sq. mi. printed in the scholarly *Ethnology of Easter Island*; and the safest

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Year	Document Title	Author	Area
1899	U. S. National Museum Report	Cooke	34 sq mi [83 sq km] (1)
1938	Vikings of the Sunrise	Buck	67 sq mi [174 sq km]
1940	Ethnology of Easter Island	Metraux	About 55 sq mi [142 sq km]
1943	Islands of the Pacific	Daniel	45 sq mi [117 sq km]
1948	Island of Death	Wolff	69 sq mi [179 sq km]
1951	Geography of the Pacific	Freeman, ed.	45 to 61 sq mi [117 to 158 sq km]
1961	Israel in the Pacific	Cole and Jensen	45 sq mi [117 sq km]
1961	An Introduction to Easter Island	Heyerdahl article	117 sq km [45 sq mi]
1962	National Geographic (January issue)	La Fay	64 sq mi [166 sq km]
1968	Mysteries of Easter Island	Maziere	45.5 sq mi [118 sq km]
1970	Island at the Center of the World	Englert	About 45 sq mi [117 sq km]
1972	Webster's New Geographical Dictionary	Staff	46 sq mi [119 sq km]
1972	The Many Islands of Polynesia	Lieb	About 50 sq mi [129 sq km]
1978	The World's Last Mysteries (Readers Digest)	LeBaron	45 sq mi [117 sq km]
1979	Chart 1389; Feb. Ed. (1:100,000)	British Admiralty	46.65 sq mi [121 sq km] (2)
1979	The Prehistory of Polynesia	McCoy, chapter	160 sq km [62 sq mi]
1982	South Pacific Handbook	Stanley	117 sq km [45 sq mi]
1984	Pacific Islands Yearbook	Barker, publisher	About 170 sq km [66 sq mi]
1987	Compton's Encyclopedia	Staff	About 46 sq mi [119 sq km]
1988	Pacific Nations and Territories	Ridgell	65 sq mi [170 sq km] (3)
1988	Cambridge World Gazetteer	Staff	166 sq km [64 sq mi]
1989	Pacific Islands Yearbook	Staff	About 180 sq km 169.5 sq mi
1990	The New Encyclopaedia Britannica	Staff	63 sq mi [163 sq km]
1990	Chile & Easter Island Survival Kit	Samagalski	117 sq km [45 sq mi]
1990	Uncommon Guide to Easter Island	Lee	64 sq mi [160 sq km] (4)
1991	Encyclopedia of World Cultures	Hays, ed.	180 sq km [69.5 sq mi]
1992	Rapa Nui National Park Map (1:50,000)	CONAF	64 sq mi [166 sq km] (5)
1992	The New Grolier Multimedia Encyclopedia	CD-ROM, V 4.0	117 sq km [45 sq mi]
1992	Easter Island / Earth Island	Bahn / Fleney	166 sq km [64 sq mi]
1993	Collier's Encyclopedia	Fairchild	64 sq mi [166 sq km]
1993	South Pacific Handbook	Staff	166 sq km [64 sq mi]
1993	The World Book Encyclopedia	Staff	47 sq mi [122 sq km]
1993	National Geographic (March issue)	Conniff	64 sq mi [166 sq km]
1993	Landfalls of Paradise	Hinz	About 50 sq mi [129 sq km]
1993	Easter Island Studies	Fischer, ed./Love, art.	160.5 sq km [62 sq mi]
1993	Trashing Soundstage Earth	Allen article	46 sq mi [119 sq km]
1994	Lonely Planet on a String (South America)	Staff	117 sq km [45 sq mi]

(1) Equivalent area in brackets calculated to nearest whole number. 1 sq mi = 2.589,9881 .sq km (The Universal Almanac - 1994); used 2.59. Areas in parentheses are from the documents.

(2) Measured with Precision Digitizer Software by Timberline.

(3) Should be 168 sq km using ratio in (1) above.

(4) Should be 166 sq km using ratio in (1) above.

(5) Method same as (2).

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